

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 25 MAY 2004

WIPO PCT

Rec'd PCT/PTO 10 SEP 2004

Applicant's or agent's file reference 113756/JMD/jet	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IEA/16)	10/507285
International Application No. PCT/AU2003/000284	International Filing Date (day/month/year) 11 March 2003	Priority Date (day/month/year) 12 March 2002		
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ A63F 9/12				
Applicant ARACAN PTY LTD et al				

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheet(s).

3. This report contains indications relating to the following items:

- | | | |
|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input type="checkbox"/> | Certain documents cited |
| VII | <input type="checkbox"/> | Certain defects in the international application |
| VIII | <input type="checkbox"/> | Certain observations on the international application |

Date of submission of the demand 3 October 2003	Date of completion of the report 14 May 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer B. NGUYEN Telephone No. (02) 6283 2306

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description, pages **1 - 7**, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☒ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages **8,9** received on **7 May 2004** with the letter of **7 May 2004**
- ☒ the drawings, pages **1/10 - 10/10**, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1 - 16	YES
	Claims	NO
Inventive step (IS)	Claims 1 - 16	YES
	Claims	NO
Industrial applicability (IA)	Claims 1 - 16	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

None of the citations in the international search report suggests the feature a jig-saw puzzle being formed from a plurality of interlocking generally planar cardboard pieces and at least some of the pieces being transition pieces which include hinges and define transitions between two intersecting surfaces in the completed puzzle.

Since none of the cited documents indicates the subject matter detailed in independent claims 1, 7 and 13 such subject matter can be considered to meet the requirements of novelty and inventive step.

The dependent claims 2 to 6, 8 to 12, 14 to 16 also meet these requirements by virtue of their dependency.

The claims also meet the requirement of industrial applicability.

CLAIMS:

1. A jigsaw puzzle including a plurality of rigid planar cardboard pieces, a plurality of interlocking cooperative pairs of coupling elements being formed in said pieces to interlock edge to edge each adjacent piece to another adjacent piece characterised by at least some of the pieces being transition pieces which include hinges and define transitions between two intersecting surfaces in the completed puzzle.
2. A jigsaw puzzle as claimed in claim 1 wherein each transition piece includes a single hinge line.
3. A jigsaw puzzle as claimed in any preceding claim wherein the planar pieces have a thickness in excess of 1mm.
4. A jigsaw puzzle as claimed in claim 3 wherein the thickness of the puzzle is from 1mm to 2mm.
5. A jigsaw puzzle as claimed in any preceding claim wherein the hinges are defined by score lines cut into one side of the transition piece only such that the piece may be bent in one direction only.
6. A jigsaw puzzle as claimed in any preceding claim which when assembled defines a hollow cube.
7. A jig-saw puzzle made of cardboard which when completed, forms a 3-dimensional object defining at least two intersecting surfaces, the puzzle being formed from a plurality of interlocking generally planar cardboard pieces, at least some of which are transition pieces being hinged such that one part of the piece is co-planar with one of the intersecting surfaces and an other part of the piece co-planar with a second different intersecting surface.
8. A jig-saw puzzle as claimed in claim 7 wherein the transition pieces define fold lines scored into one side of the pieces so that the piece may be bent in one direction only.
9. A jig-saw puzzle as claimed in claim 7 or claim 8 wherein the angle defined between the two intersecting surfaces of the transition piece in the 3-dimensional object is substantially less than 180°.
10. A jig-saw puzzle as claimed in any one of claims 7 to 10 wherein the angle defined between the two intersecting surfaces is 90°.
11. A jig-saw puzzle as claimed in any preceding claim further including a hinged structural piece defining two relatively rotatable planar portions, one first portion in use defining part of an external surface or shell of the puzzle, the other second portion extending inside the external shell of the puzzle.

12. A jig-saw puzzle as claimed in claim 11 wherein the second portion of the structural piece defines a slot for inter-engagement with parts of the structural pieces.

13. A method of making a cardboard jigsaw puzzle of a 3-dimensional object comprising the steps of:-

5 a) mapping the surfaces of the object to two dimensions

b) defining a series of transition pieces crossing edges of the object where the surfaces of the object intersect and redistributing areas of the surfaces to take account of the transition pieces;

10 c) separating the pieces in the two dimensional map and enlarging the separated pieces slightly to form a resultant map;

d) transferring or mapping the resultant map to a sheet of cardboard and forming hinge lines in the transition pieces: and

e) cutting out the pieces.

14. The method of claim 13 wherein the pieces are cut out using a laser cutter.

15 15. The method of claim 13 wherein the pieces are cut out using a knife blade.

16. A jigsaw puzzle formed by the method of any one of claims 13 to 15 including:

a plurality of rigid planar cardboard pieces, a plurality of interlocking cooperative pairs of coupling elements being formed in said pieces to interlock edge to edge each adjacent piece to another adjacent piece to form a self supporting surface;

20 wherein

the pieces when assembled form a hollow three dimensional object defining intersecting surfaces characterised by;

a plurality of transition pieces, each transition piece comprising two generally planar portions joined by a hinge line, each portion defining coupling elements for

25 interlocking with corresponding coupling means on adjacent pieces; wherein

the hinge lines of the transition pieces defining intersecting surfaces of the hollow three dimensional object.